United Nations A/73/159

General Assembly

Distr.: General
13 July 2018

Original: English

Seventy-second session
Item 99 (a) of the preliminary list*
General and complete disarmament: treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices

High-level fissile material cut-off treaty expert preparatory group

Note by the Secretary-General

The Secretary-General has the honour to transmit herewith the report of the high-level fissile material cut-off treaty expert preparatory group established pursuant to paragraph 2 of General Assembly resolution 71/259.

* A/73/50.

18-11692 (E) 230718

Please recycle

Report of the high-level fissile material cut-off treaty (FMCT) expert preparatory group*

Summary

The present report of the high-level fissile material cut-off treaty (FMCT) expert preparatory group, established on the basis of General Assembly resolution 71/259, presents a menu of potential treaty elements that would facilitate the task of future negotiators of a treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices.

The report contains four sub-sections covering a treaty's scope, definitions, verification and legal and institutional arrangements, and other elements such as a treaty's preamble, and transparency and confidence building measures. For each subsection, the report provides a list of possible treaty elements and some of the considerations that negotiators may wish to take into account. Where the report provides lists of options, these attempt to capture the full range of views that exist on a future treaty.

The experts of the Preparatory Group agreed that this report should be read in conjunction with the 2015 report of the Group of Governmental Experts, as contained in document A/70/81, and that both should be taken into account by future negotiators in their deliberations.

In its recommendations, the Preparatory Group agreed — *inter alia* — that the negotiation of a treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices begin without delay in the Conference on Disarmament, on the basis of CD/1299 and the mandate contained therein, and that further consideration be given to what measures might facilitate the commencement of negotiations and enhance confidence.

* The report is being issued without formal editing.

Contents

		Page
	Foreword by the Secretary-General	4
	Letter of transmittal	5
I.	Introduction	9
II.	Treaty Aspects	10
	A. Scope	10
	B. Definitions	14
	C. Verification	17
	D. Legal and institutional arrangements	20
III.	Other elements	27
	A. Preamble	27
	B. Transparency and confidence-building measures	28
	IV. Conclusion and recommendations	29

Foreword by the Secretary-General

The High-level fissile material cut-off treaty (FMCT) expert preparatory group (Preparatory Group) established by the General Assembly in its resolution 71/259 met in Geneva for two sessions of two weeks each, in 2017 and 2018.

In accordance with its mandate, the Preparatory Group examined the report of the Group of Governmental Experts, mandated pursuant to resolution 67/53, as contained in document A/70/81, as well as the views conveyed to the Secretary-General and contained in documents A/68/154 and Add.1, A/71/140/Rev.1 and Add.1.

The Preparatory Group also considered the views of United Nations Member States that participated in the two two-day open-ended informal consultative meetings organised by the Chair in 2017 and in 2018 in New York, which the Chair conveyed to the Group in accordance with General Assembly resolution 71/259.

As mandated by the General Assembly of the United Nations, at its meetings the Preparatory Group considered and made recommendations on substantial elements of a future non-discriminatory, multilateral and internationally and effectively verifiable treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices, on the basis of CD/1299 and the mandate contained therein.

The report of the Group provides a concise, plain-language menu of potential treaty elements to facilitate the task of future negotiators. The Report also offers options that reflect the full range of views expressed by the experts of the Preparatory Group on a future treaty.

The Preparatory Group recommends — *inter alia* — the start of negotiations of a treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices in the Conference on Disarmament, on the basis of CD/1299 and the mandate contained therein.

I take this opportunity to thank the Chair, Ambassador Heidi Hulan (Canada) and all the experts for their work, which will be a useful resource for future negotiators.

Letter of transmittal

Excellency,

I have the honour to submit herewith the report of the high-level fissile material cut-off treaty (FMCT) expert preparatory group (Preparatory Group). This group, which you appointed pursuant to paragraph 2 of General Assembly resolution 71/259 (2016), was comprised of the following experts selected on the basis of equitable geographic representation:

Mr. Djamel **Moktefi** (Algeria)
Director of Legal Affairs
Ministry for Foreign Affairs

Ms. Mariela **Fogante** (Argentina)
Minister Plenipotentiary
International Security, Nuclear and Space Affairs
Ministry of Foreign Affairs and Worship

Mr. Robert **Floyd** (Australia)
Director-General Australian Safeguards and Non-Proliferation Office Australian Department of Foreign Affairs and Trade

Mr. Marcelo Paz Saraiva **Câmara** (Brazil)
Head of the Disarmament and Sensitive Technologies Division
Ministry of External Relations

Ms. Heidi **Hulan** (Canada)
Ambassador of Canada to Austria and Slovakia, and Permanent Representative of Canada to the UN in Vienna

Mr. **Fu** Cong (China)
Ambassador for Disarmament Affairs of China

Mr. Jorge **Vallejo Mejía** (Colombia)
Deputy Vice-Minister of Energy Ministry of Mines and Energy

Mr. Tamim **Khallaf** (Egypt)
Director of the Department for Disarmament Affairs
Ministry of Foreign Affairs

Ms. Anne-Marie **Riitsaar** (Estonia)
Nuclear Non-Proliferation Expert
Ministry of Foreign Affairs

Ms. Alice **Guitton** (France)
Ambassador and Permanent Representative of France to the Conference on Disarmament, Geneva

Mr. Louis **Riquet** (France)
Alternate expert
Deputy Permanent Representative of France to the Conference on Disarmament, Geneva

Mr. Michael **Biontino** (Germany)
Ambassador and Permanent Representative of Germany to the Conference on Disarmament, Geneva

Mr. Pankaj **Sharma** (India)
Joint Secretary and Head of the Disarmament and International Security Affairs Division
Ministry of External Affairs

Mr. Amandeep Singh **Gill** (India)
Alternate expert
Ambassador and Permanent Representative of India to the Conference on Disarmament, Geneva

Mr. Kamapradipta **Isnomo** (Indonesia)
(first session)
Minister Counsellor and Political Coordinator for International Peace and Security at the Permanent Mission of the Republic of Indonesia to the United Nations in New York

Mr. Clemens **Bektikusuma** (Indonesia)
(second session)
Third secretary
Permanent Mission of the Republic of Indonesia to the United Nations Office at Geneva

Mr. Toshio **Sano** (Japan)
Former Ambassador and Permanent Representative of the Delegation of Japan to the Conference on Disarmament, Geneva

Mr. Pedro Luis **Echeverría Alegría** (Mexico)
(first session)
Deputy Director General for Disarmament and Non-Proliferation of the Secretariat for Foreign Affairs

Mr. Carlos **González Campos** (Mexico)
(second session)
Subdirector for International Affairs, National Commission of Nuclear Safety and Safeguards

Mr. Ahmed Nouri **Salimi** (Morocco)
Head of Division
Ministry of Foreign Affairs and International Cooperation

Mr. Piet **de Klerk** (Netherlands)
Ambassador at Large
Ministry of Foreign Affairs

Mr. Marek **Szczygiel** (Poland)
Ambassador at Large
Security Policy Department
Ministry of Foreign Affairs

Mr. **Kim** Inchul (Republic of Korea)
Ambassador
President of the Institute of Foreign Affairs and National Security

Mr. Vadim **Smirnov** (Russian Federation)
Deputy Director
Department for Non-proliferation and Arms Control
Ministry of Foreign Affairs

Mr. Mikhail **Kondratenkov** (Russian Federation)
Alternate expert
Senior Counsellor
Department for Non-proliferation and Arms Control
Ministry of Foreign Affairs

Mr. Isidor Marcel **Sene** (Senegal)
Technical Adviser of the Minister of Foreign Affairs and Senegalese Abroad
Ministry of Foreign Affairs and Senegalese Abroad

Mr. Johann **Kellerman** (South Africa)
Director
Disarmament and Non-proliferation
Department of International Relations and Cooperation

Mr. Göran af **Ekenstam** (Sweden)
Senior Adviser
Nuclear Non-proliferation Swedish Radiation Safety Authority

Mr. Matthew **Rowland** (United Kingdom of Great Britain and Northern Ireland)
Ambassador and Permanent Representative of the United Kingdom to the Conference on Disarmament, Geneva

Mr. Jeffrey **Eberhardt** (United States of America)
Director
Office of Multilateral and Nuclear Affairs
Bureau of Arms Control, Verification and Compliance
Department of State

The Preparatory Group was ably assisted by the United Nations Office for Disarmament Affairs in Geneva, led by Mr. Marco Kalbusch, Senior Political Affairs Officer, and Ms. Silvia Mercogliano, Political Affairs Officer, and also received valued expert technical advice from Mr. Pavel Podvig and Mr. Zia Mian (United Nations Institute for Disarmament Research) and Mr. Olli Heinonen, who was a member of the Chair's team.

Views submitted by Member States in document A/68/154 and Add.1 and A/71/140/Rev.1 and Add.1 were taken into account by the Preparatory Group, as well as those conveyed by the Chair from the two open-ended informal consultative meetings held in New York on March 2–3, 2017 and February 15–16, 2018.

As its name suggests, the Preparatory Group was established to prepare, but not conduct, FMCT negotiations. Its constructive and practical discussions focussed on the possible elements of a future treaty, notably by building on — but not duplicating — the report of the 2014–15 Group of Governmental Experts (A/70/81).

In its final report, the FMCT Preparatory Group succeeded in distilling, in plain language, options for potential treaty provisions. These options cover the full range of existing views on an FMCT as understood by the group, and are complemented by those considerations experts believed would need to be brought to bear by future negotiators in choosing among them.

The inclusive character of this report, and experts' commitment to this approach, created the freedom for the group to openly debate the merits of all options, and examine how they would relate to one another as part of a future treaty's architecture, without prejudice to national positions. In addition, the iterative path this process followed, between the 25-member Preparatory Group and the GA, represented a unique multilateral exercise which, in my view, constitutes a model for future work in the area of nuclear non-proliferation and disarmament.

The value of a FMCT as a tool for addressing contemporary non-proliferation and disarmament challenges has never been more apparent than it is in the current international security context. I am confident that this consensus report represents a meaningful contribution towards such a treaty, the negotiation of which has long been the overwhelming will of the international community.

On the behalf of the Preparatory Group, I am honoured to submit to you the present report, which was adopted unanimously on June 8, 2018.

(*Signed*) Heidi **Hulan**
Chair of the High-Level Fissile Material Cut-off Treaty
Expert Preparatory Group

I. Introduction

1. In 2012, the General Assembly, in its resolution 67/53, created a Group of Governmental Experts to "make recommendations on possible aspects that could contribute to, but not negotiate a treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices on the basis of document CD/1299 and the mandate contained therein".[1] In 2015, the Secretary-General of the United Nations transmitted that group's consensus report (document A/70/81) to the General Assembly and to the Conference on Disarmament. It contained the most thorough expert intergovernmental assessment of a treaty to date, and characterized the range of expert views on treaty *aspects* — notably in relation to a future treaty's scope, definitions, verification, and legal and institutional arrangements.

2. The following year, the General Assembly underlined in resolution 71/259 (2016), that the Group of Governmental Experts' report, and the deliberations which underpinned it, serve as a valuable reference for States and a useful resource for treaty negotiators. In the absence of negotiations in the Conference on Disarmament, the General Assembly also requested the Secretary-General to establish a "high level fissile material cut-off treaty expert preparatory group" (Preparatory Group) to build on this work by making recommendations on treaty *elements* that would shape the treatment of each aspect of a final treaty.[2]

3. The Preparatory Group's membership was comprised of experts from 25 States chosen on the basis of equitable geographic representation. The Preparatory Group met over two two-week sessions in Geneva during 2017 and 2018, and operated on the basis of consensus.

4. The Preparatory Group took an inclusive approach to its work, based on a wide variety of information sources. In accordance with General Assembly resolution 71/259, the Preparatory Group took into account the views conveyed by the Chair from the two open-ended informal consultative meetings held in New York on March 2–3, 2017 and February 15–16, 2018. It also examined the views submitted by Member States as contained in documents A/68/154 and Add.1 and A/71/140/Rev.1 and Add.1. In addition, the Preparatory Group benefited from informal briefings and advice from internationally recognized technical experts. Experts were encouraged to express their views in working papers, which were taken into account in the preparation of this report.

5. As suggested by its name, the Preparatory Group, while focusing on preparing for future treaty negotiations, considered and made recommendations on substantial elements of a future non-discriminatory, multilateral and internationally and effectively verifiable treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices, on the basis of CD/1299 and the mandate

[1] Referred here after variously as "the treaty" or "a treaty" for the sake of simplicity and without prejudice to the treaty's final form.

[2] General Assembly resolution 71/259 OP2 states: "Requests the Secretary-General to establish a high-level FMCT expert preparatory group with a membership of 25 States, chosen on the basis of equitable geographical representation, which will operate by consensus, without prejudice to national positions in future negotiations, and which will meet in Geneva for a session of two weeks each in 2017 and 2018, to consider and make recommendations on substantial elements of a future non-discriminatory, multilateral and internationally and effectively verifiable treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices, on the basis of CD/1299 and the mandate contained therein; the high-level FMCT expert preparatory group will also examine, with a view to making possible recommendations, the report of the Group of Governmental Experts, mandated pursuant to resolution 67/53, as contained in document A/70/81, as well as the views submitted by Member States as contained in documents A/68/154 and Add.1 and A/71/140/Rev.1 and Add.1."

contained therein. To do so, experts developed a concise, plain-language menu of potential treaty elements that would facilitate the task of future negotiators. Where lists of options exist in this report, they should be understood to reflect the full range of views expressed on a future treaty but not to imply in any way agreement on any individual option. Since these preparatory discussions did not constitute negotiations, no attempt was made to narrow this range of substantive options, or resolve the political obstacles preventing negotiation of a treaty. Additionally, experts were able to build on the work of the Group of Governmental Experts by further elaborating a number of issues including the legal and institutional considerations related to a future treaty.

6. Experts agreed that this report should be read in conjunction with the report of the Group of Governmental Experts as contained in document A/70/81, which was the starting point for the Preparatory Group's work. The Preparatory Group was mindful not to repeat its content nor re-open the consensus already achieved in that context. Throughout deliberations, experts also avoided replaying debates that underpinned the Group of Governmental Experts' findings. This helped maximize the short time available to the Preparatory Group, and ultimately led it to produce a menu of potential treaty elements and achieve agreed recommendations (as contained in paragraph 96) that may help lay important groundwork for future negotiations. Both are presented without prejudice to national positions or the emergence of other elements prior to or during negotiations.

II. Treaty Aspects

7. Part II of this report contains four sub-sections covering the main treaty aspects of a future treaty, that is to say its A) scope, B) definitions, C) verification and D) legal and institutional arrangements. For each aspect, the Preparatory Group engaged in nuanced and granular discussions on the potential composition of elements and how they could be reflected in a treaty. Each subsection contains a list of possible treaty elements and some of the considerations that negotiators may wish to take into account when weighing these options.

8. Neither the potential treaty elements (underlined), nor the options listed under each, are presented in any particular order of rank, priority or importance. Furthermore, the options are not necessarily mutually exclusive and experts noted that possible combinations could be considered during negotiations. Overall, the Preparatory Group also agreed that negotiators would need to appreciate the interrelationship between treaty aspects and how decisions made on any one aspect would impact the choice of elements in others.

A. Scope

1. Potential treaty elements:

9. Underlying obligation

- The treaty should contain an explicit obligation not to produce fissile material[3] for nuclear weapons or other nuclear explosive devices.

[3] Hereafter, "fissile material" refers to fissile material as defined in a future treaty.

10. Additional obligation: diversion of fissile material

- Treaty does not include an explicit obligation prohibiting diversion of fissile material, since diversion would be dealt with by the treaty's verification regime
- Explicit obligation not to divert treaty-obligated fissile material from non-proscribed to proscribed purposes
- Explicit obligation not to divert treaty-obligated fissile material from non-proscribed purposes.

11. Additional obligations: acquisition and transfer of fissile material

- No explicit obligation prohibiting acquisition and transfer
- Explicit obligation not to acquire fissile material for proscribed purposes
- Explicit obligation not to transfer fissile material for proscribed purposes.

12. Additional obligations: assisting, inducing or encouraging activities proscribed by the treaty

- No explicit obligation against assisting, inducing or encouraging activities proscribed by the treaty
- Explicit obligation against assisting, inducing or encouraging activities proscribed by the treaty.

13. Additional implementing obligation: declarations

- Treaty does not include an explicit obligation related to declaration requirements, since these would be contained in individual agreements worked out between each State party and the verification body
- Treaty includes an explicit obligation related to declaration requirements for States parties
- A list of declarations and their content is included in an annex to the treaty.

14. Additional implementing obligations: requiring States parties to close-down/disable/decommission/dismantle facilities or convert them to civilian and/or non-proscribed use

- No explicit obligation relating to closing-down, disabling, decommissioning, dismantling facilities
- Explicit obligation requiring States parties to close-down, disable, decommission and dismantle production facilities, or parts thereof, used exclusively for the production of fissile material for nuclear weapons or other nuclear explosive devices
- Explicit obligation offering a choice to States parties to either close-down disable, decommission and dismantle facilities or convert them to civilian and/or non-proscribed uses
- Explicit obligation not to revert these facilities to a condition that would allow for the production of fissile material for nuclear weapons or other nuclear explosive purposes.

15. Additional implementing obligation: verification

- Explicit or implicit obligation to accept verification with specific measures included in the treaty

- Explicit obligation to accept verification with specific measures elaborated in a separate agreement between each State party and verification body based on a model agreement.

16. Possible treaty elements related to functional categories of fissile material

Fissile material produced after the entry into force of the treaty:

- Include element specifying that the underlying obligation, would only proscribe production for nuclear weapons or nuclear explosive devices, and would not infringe upon States parties' rights to the peaceful uses of nuclear energy or prohibit non-proscribed military uses
- Explicit obligation for States parties to subject this material to the treaty's verification regime, with managed access procedures where necessary, to the extent this material is not covered through existing safeguards agreements, as applicable.

Fissile material produced prior to the entry into force of the treaty for civilian and non-proscribed purposes:

- Material is not subject to the treaty so no obligation required
- Obligation to declare this material only
- Obligation to declare this material and subject it to the treaty's verification regime, with managed access procedures where necessary, to the extent this material is not covered through existing safeguards
- Combine one of the options above with provisions that address this material through provisions enabling parallel arrangements, additional protocols or voluntary measures that States parties could pursue during or subsequent to treaty negotiations, including within a set timeframe.

Fissile material produced prior to entry into force of the treaty that is designated by the concerned State party as excess to nuclear weapons requirements:

- Material is not subject to the treaty so no obligation required
- Obligation that any voluntary declarations of fissile material that is designated as excess to nuclear weapons would be subject to the verification regime once the material is in non-sensitive form
- Obligation that any reduction in nuclear weapons would result in a designation of the fissile material recovered from those weapons as excess to nuclear weapons requirements and subject to the verification regime once the material is in non-sensitive form
- Include mechanism enabling fissile material released by the results of individual, bilateral or multilateral disarmament arrangements to be declared and made subject to the treaty's verification regime
- The treaty addresses this material through provisions in the treaty or enabling parallel arrangements, additional protocols or voluntary measures that States parties could pursue during or subsequent to treaty negotiations, including within a set timeframe
- Obligation not to revert fissile material designated as excess to nuclear weapons requirements to proscribed purposes.

Fissile material produced for nuclear weapons prior to entry into force of the treaty:

- Material, regardless of how past production is referred to, is not subject to the treaty, so no obligation required
- Obligation that existing stocks of fissile material for nuclear weapons be subject to the treaty
- Obligation that material in nuclear weapons be declared but not verified
- Obligation that any reduction in nuclear weapons would result in a declaration of the fissile material recovered from those weapons as excess to nuclear weapons requirements and subject to the verification regime once the material is in non-sensitive form
- Include mechanism enabling fissile material released by the results of individual, bilateral or multilateral disarmament to be declared as excess and made subject to the treaty's verification regime
- Treaty addresses this material through provisions enabling parallel arrangements, additional protocols or voluntary measures that States parties could pursue during or subsequent to treaty negotiations, including within a set timeframe.

2. Considerations related to scope:

17. Negotiators may want to take into account some of the general principles that guided the Preparatory Group's discussion on a treaty's scope. The treaty's scope sets out the legal obligations incumbent on States parties, and should support its objectives and adhere to its basic principles as set out in document A/70/81. The treaty must prohibit the production of fissile material for nuclear weapons or other nuclear explosive devices, and apply this in a non-discriminatory manner. The treaty would not ban the production of fissile material per se, but rather proscribe its production for use in nuclear weapons or other nuclear explosive devices.

18. During negotiations, care should be taken to ensure that no provision is drafted in a way that could be construed as infringing upon States parties' rights to the peaceful uses of nuclear energy or as prohibiting non-proscribed military uses. In connection with the underlying obligation of the treaty, negotiators may want to consider including a provision to the effect that the treaty does not preclude the use of fissile material of any quality and any isotopic composition for purposes not proscribed by the treaty.

19. Building on the examination of the various functional categories of fissile material contained in paragraphs 20–27 of document A/70/81, the Preparatory Group examined the potential treaty elements that could be included in the treaty to define the treaty's scope. The Preparatory Group did not attempt to decide if, or to what extent, each category could be included in a future treaty, but rather outlined in paragraph 16 possible treaty elements falling in each.

20. The potential diversion, acquisition and transfer of treaty-obligated fissile material for proscribed purposes pose a threat to the treaty's underlying obligation. Negotiators will need to determine how to mitigate these risks.

21. The Preparatory Group considered whether, in addition to fissile material, equipment and technology (tangible or intangible) related to the production of treaty-obligated material have relevance or not for treaty objectives or purposes.

22. If assisting, inducing or encouraging prohibited activities are addressed in the treaty, negotiators would need to further explore how these concepts are defined.

23. In order to mitigate diversion risks and to facilitate verification, the treaty may contain explicit obligations requiring States parties to close-down/disable/ decommission/dismantle production facilities or convert them to civilian and/or non-proscribed uses.

B. Definitions

1. Potential treaty elements:

24. Definition of fissile material

- The IAEA safeguards concept of special fissionable material, as outlined in Article XX of its Statute, focusing on plutonium-239, uranium-233, uranium enriched in the isotopes 235 or 233 and mixtures containing one or more of the foregoing
- The IAEA safeguards concept of un-irradiated direct use material, focusing on plutonium containing less than 80% Pu-238, and high enriched uranium (containing 20% or more of the isotope uranium-235 and/or uranium-233)
- A treaty specific definition of weapons grade material containing 90% or more of uranium-235 or uranium-233 or plutonium containing more than 95% of plutonium-239
- A specific isotopic composition, to be determined during negotiations based on the scope and verification requirements of the treaty.

25. Other/alternative fissile materials

- Treaty does not include a definition of other/alternative fissile materials since they fall outside the treaty's scope
- Relevant isotopes of neptunium and/or americium are defined as fissile material for the purposes of the treaty, either through a treaty-specific definition or one based on existing definitions (e.g. IAEA Safeguards Glossary)
- Treaty provision directly linking treatment of these materials to developments in other regimes
- Treaty includes a provision to capture "any other fissile material suitable for the manufacture of nuclear weapons". This can be accomplished by adding to the definition of fissile material, any material:
  - as agreed by States parties in a (future) treaty annex or protocol
  - as per a decision of the treaty governing body (which could be based on developments in other regimes).

26. Definition of fissile material production

- Defined as "any activity that produces fissile material" (per the applicable definition of fissile material)
- Specific definition(s) focused on enrichment and reprocessing activities and adapted to the treaty definition of fissile material, including the following:

- to enrich uranium to an enrichment of [x][4] percent or greater in those isotopes
- to separate fissile material from fission products in irradiated nuclear material through reprocessing or any other process
- to increase plutonium-239 to [x] percent in plutonium by any isotopic separation process

- Defined as "activities using production facilities to enrich uranium in U-235, and to acquire plutonium or U-233 by reprocessing".

27. Definition of fissile material production facility

- Defined as "any facility that is capable of producing fissile material" (per the applicable definition of "fissile material production")
- Specific definition including thresholds of production capacities based on the treaty definition of "fissile material" including:
  - Isotopic enrichment facilities where production capacities are above a threshold to be determined by negotiators
  - irradiated nuclear material reprocessing facilities where production capacities are above a threshold to be determined by negotiators
- Definition of "fissile material production facility", that includes facilities other than enrichment and reprocessing facilities (although not uranium mining and milling)
- A definition of "fissile material production facility" based on equipment and design and annual production capacity, or use for fissile material production
- Defined as "uranium enrichment facilities or reprocessing facilities, with a threshold to be determined by negotiators, an integrated and stable process, comprehensive supporting equipment, and the capability of continuous operation".

2. Considerations related to definitions:

28. Negotiators may want to take into account some of the general principles that guided the Preparatory Group's discussion on a treaty's definitions. Definitions should be practical, scientifically and technically accurate and tailored to the specific objectives of the treaty, and be crafted in a manner that clarifies the obligations of a treaty, while allowing for viable implementation and verification. Final definitions would have an impact on treaty scope and the verification regime, with key elements of the latter requiring precise definitions to preclude variances in interpretation or in the implementation of obligations.

29. The Preparatory Group explored various approaches to treaty definitions. Under a minimalist view, the treaty would define only the terms that are essential for the clarity of the agreement. Alternatively, a more maximalist approach would involve defining as many terms as possible for greater clarity in treaty interpretation.

30. Negotiators may wish to take into account the benefits and drawbacks inherent to cross-referencing definitions with other treaties/regimes, and consider whether treaty-specific lists of definitions are more appropriate. It is furthermore possible that

[4] [x] in paragraph 26 will reflect the levels of isotopic enrichment or reprocessing as per the treaty's definition of fissile material.

the definitions included in this treaty might have an impact on other relevant regimes, a consideration negotiators may wish to take into account.

31. Negotiators should be aware that the scope of the treaty will have significant implications for the definition of "fissile material production" in particular. For example, in the event that the treaty excludes past production of fissile material, this definition could explicitly state that it does not include activities involving fissile material produced prior to the entry into force of the treaty, and vice versa.

32. Negotiators should be aware that the choice of definition for fissile material has significant implications for other treaty aspects and for verification in particular. The definition will determine which facilities, or parts thereof, will need to be verified. This in turn affects the content of States parties' declarations and the verification tools that will be required. However, automatic linkages between the breadth of definition and the verification coverage should not be assumed.

33. If negotiators decide to include other/alternative fissile materials in the treaty, they will need to be defined. While this typically relates to neptunium and americium, it could also address other/alternative materials so long as they are fissile in nature. It may also be possible to define these materials for the purpose of prohibiting their production for use in nuclear weapons or other nuclear explosive devices, but not subject them to treaty verification unless so decided by States.

34. Negotiators may wish to consider whether or not non-fissile materials — tritium *inter alia* has been mentioned — would be relevant for inclusion in a treaty. If negotiators decide to address these materials, it could be done either in the treaty or at a later stage if agreement exists.

35. Negotiators may decide to define the terms "diversion", "acquisition", "transfer", "non-sensitive form",[5] "non-proscribed purposes" and/or "proscribed purposes". However, negotiators will want to avoid definitions that are overly broad or narrow so as to facilitate and not hamper assessments of compliance, create unintended loopholes or impact negatively on the peaceful uses of nuclear energy.

36. Negotiators may want to define quantitative thresholds associated with "fissile material production facility". This definition could take into account a possible restriction based on the "significant quantities" of fissile material that would need to be produced for a nuclear weapon or a nuclear explosive device, as well as the risk posed by accumulated production from multiple facilities. It could also include a provision distinguishing between "industrial-scale" and "laboratory-scale" facilities. If negotiators define "fissile material production facility" as one that is "capable of producing fissile material", this concept should be further elaborated.

37. In addition, it is possible to incorporate and define terms relating to facility status into any definition of fissile material production facility (e.g. "closed down", "disabled", "decommissioned", "dismantled", etc.) either by referring to the IAEA Safeguards Glossary or creating new ones. In line with the principle of irreversibility, negotiators may also wish to take into account the capacity of a facility to produce fissile material as opposed to its current status (e.g. fissile material production facilities that have been decommissioned or dismantled, but that can be recommissioned to produce proscribed material again).

38. The treaty could also provide a separate definition of "fissile material-*related* facility" to distinguish between facilities that are used for production and other facilities in the fuel cycle including storage or processing facilities (other than enrichment and reprocessing) where treaty-obligated material is processed or used. If

[5] Consideration should be given to the fact that the determination of what is in "non-sensitive form" remains primarily a national prerogative.

so, these facilities could be declared and monitored under the verification regime. If the verification regime effectively follows the fissile material produced, such a definition may not be warranted.

39. Once the scope and verification regime for the treaty have been established, negotiators will want to look closely at any decision to define any of the additional terms outlined in paragraph 36 and 37, since most have particular technical meanings.

C. Verification

1. Potential treaty elements:

40. Verification and treaty architecture

- Verification regime negotiated and fully detailed in the body of the treaty itself
- Treaty sets out the key verification-related obligations and includes a verification annex containing the implementation procedures for the verification regime, applicable to all States
- Treaty elaborates the main requirements of the verification regime and stipulates that individual agreements/protocols are to be negotiated between the verification body and individual States parties or groups of States parties either by the time of, or after, entry into force/accession
- Treaty sets out the main requirements of the verification regime and establishes a model verification/ safeguards agreement that would be implemented through agreements with individual States parties.

41. Verification arrangement

- States already required, at entry into force, to have comprehensive safeguards:
  - States parties are required to have in force an IAEA Comprehensive Safeguards Agreement
  - States parties are required to have in force an IAEA Comprehensive Safeguards Agreement and Additional Protocol (or credible measures similar, but not necessarily identical to)
  - States parties are required to have in force an IAEA Comprehensive Safeguards Agreement and Additional Protocol.
- States not required, at entry into force, to have comprehensive safeguards:
  - Alternative verification arrangement specific to the treaty is developed.
- A uniform arrangement for all States parties.

42. Verification approach

- Focussed approach concentrating on routine verification activities at enrichment and reprocessing facilities and at other facilities that are processing or handling treaty-obligated fissile material
- Comprehensive approach covering the focussed approach and most, if not all, of the nuclear fuel cycle
- Hybrid or risk-based approach, which grades verification effort based on identified risks, concentrating particularly on those areas of the nuclear fuel cycle where the degree of attractiveness for misuse is highest, should a party seek to violate its treaty obligations

- Categorized approach, which applies different verification methodologies and measures for different categories of uranium enrichment facilities and reprocessing facilities, based on a categorization according to their production purpose and operational status.

43. Declaration content

- Treaty specifies that initial declarations could include any or all of the following:
  - Fissile material possessed at entry into force that is subject to the treaty
  - All fissile material production facilities, as defined by the treaty, and possibly including design information
  - Fissile material-related facilities, as defined by the treaty (as applicable)
- Treaty specifies that ongoing declarations could include any or all of the following:
  - Current inventories, including their locations, of all fissile materials (including by category as applicable)
  - Current and future plans on the production and use of fissile material to enable verification planning
  - Plans to construct new facilities or changes to the status of existing ones
  - Plans to conduct fissile material-related research and development activities whether or not fissile material is physically present
- Treaty specifies that information relevant to gaining assurance with regard to the completeness of a state's declarations, such as information about nuclear fuel cycle activities
- In addition to any of the above options, the treaty may specify that more specific declaration content would be prepared on a case-by-case basis between the verification body and the State party as needed to facilitate verification
- Declaration content would include treaty-obligated fissile material production facilities and fissile material produced and acquired after the entry into force of the treaty
- The treaty is silent *vis-à-vis* declaration content, which would be prepared on a case-by-case basis between the verification body and the State party.

44. Verification toolbox

- A toolbox could contain, any or all of the following, but would not necessarily be limited to:
  - A system of material accountancy and control
  - Declarations
  - Containment and surveillance techniques and monitoring
  - Inspections: routine, non-routine (e.g. complementary access, special, challenge)
  - Consultation and clarification mechanisms for states to address compliance concerns
  - Managed access procedures and provisions on protection of sensitive information

- Remote monitoring techniques
- Environmental sampling
- Open source techniques including commercial satellite imagery
- Design information verification.

2. Considerations for verification:

45. Negotiators may want to take into account some of the general principles that guided the Preparatory Group's discussion on treaty's verification. Namely, that a non-discriminatory, multilateral and internationally and effectively verifiable treaty should deter and detect non-compliance in a timely manner, provide credible assurance that States parties are complying with their treaty obligations and guard against frivolous and/or abusive allegations of non-compliance. At the same time, concerns regarding sensitive information, whether related to national security, non-proliferation or commercial proprietary reasons should be respected, in a manner that avoids compromising the credibility and efficacy of verification efforts, and considers the cost-efficiency dimension of verification activities.

46. Decisions about the verification model for the treaty are interlinked with decisions on the treaty's institutional model, and in particular, whether the IAEA will play a role in treaty verification. If the IAEA were selected as the verification body, not every option identified in paragraph 40 would be applicable, since it is likely that the verification model would involve individual agreements being negotiated with States parties, or a model safeguards agreement.

47. In addition, negotiators will want to consider the benefits and drawbacks of transferring and applying tools and concepts from other relevant regimes to this treaty. It is important to ensure that new verification-related obligations complement the existing ones, while avoiding duplication or contradiction.

48. The principle of non-discrimination, which does not presuppose application of identical verification procedures in all States parties, is relevant to the design of the treaty's verification regime. In particular, negotiators will want to consider how to apply standards for the treaty's verification in States with currently unsafeguarded facilities, since any applicable verification agreements will not necessarily cover all relevant facilities where fissile material is handled in these States.

49. When selecting the verification approach, negotiators should consider the extent to which credible assurances can be provided that States parties are complying with their treaty obligations that no undeclared fissile material production is occurring, and no undeclared fissile material production facilities exist, thereby addressing both the correctness and completeness of declarations. This is connected with the appropriate identification and consistent application of treaty verification measures, while taking into account the concerns of States parties regarding sensitive information, whether related to national security, non-proliferation or commercial proprietary reasons. In this context, negotiators may wish to explore a deferred verification approach, in which certain fissile material, when appropriate, would be secured and verified when it enters the elimination or disposition process.

50. The group considered that the verification regime would be particularly relevant for countries with unsafeguarded facilities at the entry into force of the treaty while states already required to have comprehensive safeguards might have their verification requirements met by their existing safeguards arrangements at the entry into force.

51. Negotiators may see merit in explicitly stating the starting and termination points of verification. For example, the level of irradiation at which the fissile

material is no longer considered unirradiated or the level of dilution at which it becomes practically irrecoverable. Negotiators may want to establish standards for "significant quantities" and "timeliness", which could differ from existing IAEA standards for states not currently required to have in place comprehensive safeguards.

52. A diverse toolbox will be necessary for the regime to provide credible assurance that States parties are complying with treaty obligations and verification requirements. The nature and content of the verification toolbox will depend on decisions made by negotiators on the treaty's scope and definitions. New tools may need to be developed to address technical verification challenges, including the protection of sensitive information, depending on the scope of the treaty. A specific verification arrangement may need to be developed for application of verification to fissile material in non-proscribed military use. It will also be important for negotiators to leave flexibility in the toolbox to account for future developments in verification technology and/or the requirements of ongoing and future disarmament efforts.

53. As a legal and practical matter, States parties will need to provide declarations in order to facilitate effective verification. The nature and content of declarations are interlinked with the scope and definitions of the treaty, and the verification model selected by negotiators. Negotiators will also need to decide by which means declaration content is determined.

D. Legal and institutional arrangements

1. **Potential treaty elements:**

54. Governance/policy-making and technical bodies

- Treaty establishes a conference of States parties (with or without an established review cycle)
- Treaty establishes an executive council
  - Unique to the Treaty
  - Within the IAEA
- A verification body is established
  - Unique to the treaty
  - Within the IAEA
    - Safeguards department
    - New department
- Administrative secretariat is created
  - Unique to the treaty
  - Within the IAEA.

55. Models for a treaty's institutional structure

- **Standalone FMCT organization (FMCTO)**
  - Decision-making vested in the conference of States parties and a FMCTO executive council
  - Verification would be carried out by a FMCT-specific verification body
  - Administrative support provided by FMCTO secretariat.

- **FMCTO/IAEA support under cooperation agreement**
  - Dedicated FMCT organization
  - Decision-making vested in the conference of States parties and a FMCTO executive council
  - Verification support provided by the IAEA under a cooperation agreement, supplementing verification activities undertaken under IAEA safeguards agreements
  - Administrative support provided by FMCTO secretariat.
- **FMCTO oversight/IAEA verification**
  - Dedicated FMCT organization
  - Decision-making vested in the conference of States parties and the FMCTO executive council
  - Separate verification unit created in the IAEA, under the responsibility of the Director General but outside the standard IAEA decision-making structure
  - Administrative support provided by FMCTO secretariat and/or unit within the IAEA.
- **IAEA verification and oversight**
  - Decision-making vested in:
    - FMCT Conference of States parties for treaty review
    - Possible FMCT executive council for treaty implementation/compliance
    - IAEA Board of Governors for oversight of the verification regime
  - Verification carried out by the IAEA, within or outside the Safeguards Department, through the development of safeguards-type bilateral agreements with States parties
  - Administrative support provided by IAEA Secretariat (possibly special FMCT unit).

56. Mechanisms to address issues relating to non-compliance

- **Raising compliance concerns:**
  - Verification body reports findings of concerns to the relevant decision-making body
  - State party raises concerns to:
    - Verification body
    - Executive council
    - Conference of States parties (including through an extraordinary session).
- **Assessing allegations of non-compliance and attempting to resolve outstanding issues:**
  - Discussion between verification body and State(s) party(ies) implicated
  - Dialogue between States facilitated by the executive council

- Dialogue (among States) in the executive council or conference of States parties.

- **Making a finding of non-compliance:**
  - States parties (whether in the conference of States parties or the executive council) should be vested with the authority to make a finding of non-compliance based on the information received from the verification body, the executive council and/or the conference of States parties.
- **Reporting formal findings of non-compliance:**
  - Treaty body (executive council or conference of States parties as applicable) takes measures allowed by treaty
  - Treaty body (executive council or conference of States parties as applicable) reports to the UN Security Council and/or the UN General Assembly.
- **Non-compliance: Possible corrective measures**
  - Suspension of membership from decision-making bodies
  - Revoking privileges under the treaty
  - Collective measures in conformity with international law
  - Reporting to the UN Security Council and/or UN General Assembly.

57. Dispute settlement structure

- One or more of the following options, potentially arranged in an escalatory scheme:
  - Bilateral or plurilateral consultations between States parties
  - Disputes are settled within executive council (or its equivalent)
  - Disputes are settled within conference of States parties
  - Subsidiary body is established to settle disputes
  - Arbitration
  - Mediation
  - Referral to the International Court of Justice (advisory opinion).

58. Substantive amendment procedure

- Referral mechanism to conference of States parties
- Review conference
- Amendment conference
- *Ad hoc* diplomatic conference.

59. Process for technical updates

- Dedicated and expedited process for technical updates
- No dedicated and expedited process is possible.

60. Entry into force

- Entry into force dependent on [x] # of ratifications
- Entry into force dependent on the ratification by all, or [x] #, of States in accordance with specified criteria:

- States with nuclear power/research reactors
- States with unsafeguarded facilities
- States with enrichment and/or reprocessing facilities/capabilities
- States whose governments are designated depositaries of the treaty; or
- States from more than one of the categories above

- Entry into force dependent on the ratification of States as identified in the Treaty
- Any combination of the above
- After [x] time period after any of the first four options
- Any of the foregoing could be combined with a provisional application provision
- Entry into force expedited through the progressive development of a framework agreement model.

61. Duration

- Indefinite
- Long duration with renewal provisions
- Long duration without renewal provisions.

62. Withdrawal

- Compliance as a condition of withdrawal
- Withdrawal based on extraordinary events related to subject matter of the treaty have jeopardized a State party's supreme interest
- Advance notice for withdrawal
- Element indicating that States remain responsible for commitments previously entered into on treaty obligated material, and for any violations that may have been committed prior to withdrawal
- Any combination of the above.

63. Treaty accession

- The treaty should include an element enabling it to be open for accession, with or without conditions, to all States at any time after entry into force.

64. Reservations

- Treaty states that its provisions are not subject to reservations
- Treaty only allows for reservations not incompatible with core obligations (object and purpose of the treaty)
- No specific treaty element on reservations.

65. Interpretative declarations

- Treaty explicitly allows interpretative declarations
- Treaty remains silent on interpretative declarations.

66. Depositary/depositaries

- Treaty depositary is the UN Secretary-General
- Treaty depositary is specific State(s) identified in the treaty.

2. Considerations for legal and institutional arrangements:

67. Negotiators may want to take into account some of the general principles that guided the Preparatory Group's discussion on a treaty's legal and institutional arrangements. For the Preparatory Group, it was important that these arrangements be efficient and effective, non-discriminatory, flexible and adaptive for responsive decision-making. They must also ensure legal stability and credibility, including by being politically impartial and technically able and by applying resource-efficient techniques, and protect the security of information flowing into the system.

68. To facilitate effective governance and decision-making, negotiators will want to ensure that the representation, roles and responsibilities of the institutional bodies are clearly established. As part of this, negotiators should consider whether a single policy-making body in the form of a conference of States parties will suffice, or whether it is also necessary to establish an additional policy-making body such as an executive council. If not accomplished during negotiations, negotiators may see merit in specifying how and when this should be done. Experts pointed to the connection between the time required for the establishment of governance bodies and the treaty's entry into force, which should be taken into account during negotiations. In addition, negotiators will need to consider provisions to address the relationships between these and other international bodies, an area where further work is recommended.

69. Possible treaty elements referring to a verification role for the IAEA assume a favourable decision by IAEA policy-making organs for that Agency to play a role in a treaty banning the production of fissile material for nuclear weapons or nuclear explosive devices. Negotiators should also consider the implications that the institutional structure selected has for the IAEA Statute.

70. If negotiators choose the standalone FMCT organization model for the treaty's institutional structure, they will need to determine if and how verification activities of the IAEA in States with comprehensive safeguards could be sufficient guarantee of compliance with FMCT verification commitments. Options allowing for detailed exchange of verification information between the two organizations could be considered, especially where compliance questions impact both organizations. Establishing a mechanism to protect sensitive information would also need to be a priority, though negotiators could envisage the creation of a confidentiality commission within the verification body to accomplish this goal.

71. If negotiators base the institutional structure on the FMCTO/IAEA verification under cooperation agreements model, the conference of States parties would be vested with treaty review, supervision of treaty implementation, recommendations and guidelines on all aspects relating to the FMCT. The FMCTO executive council would be responsible for implementation and compliance, relations with other institutions and the supervision of the technical secretariat. The cooperation agreement between the IAEA and the FMCTO would enable the former to provide support on the verification of the FMCT on the basis of existing mechanisms (in particular safeguards elements).

72. If negotiators choose the FMCTO oversight/IAEA verification model for the treaty's institutional structure, a separate FMCT verification structure would be established in the IAEA. Negotiators may want to consider whether the IAEA Board of Governors could request the Director General to consult and inform (under this model, the IAEA Board of Governors would not play a direct role in treaty decision-making, whereas the Director General would oversee the verification unit). Also, if the treaty's verification approach was a comprehensive safeguards agreement, or a comprehensive safeguards agreement plus an additional protocol (or measures consistent with), further consideration would be needed on how to address

verification in States that currently do not have both. Lastly, if this model is selected, there may be merit in ensuring physical proximity between the FMCT organization and the IAEA.

73. If negotiators choose an IAEA verification and oversight model for the treaty's institutional structure, the IAEA would carry out treaty verification through the development of safeguards-type bilateral agreements with FMCT States parties, and in all cases, the IAEA board would be involved in determining compliance. If the treaty's verification approach was a comprehensive safeguards agreement, or a comprehensive safeguards agreement plus an additional protocol (or measures consistent with), further consideration would be needed on how to address verification in States that currently do not have both. There would be no standing treaty organization, but rather treaty-related governance/decision-making would be vested in the States parties via the conference of States parties. Under this model, negotiators could choose to embed a separate FMCT executive council in the IAEA to oversee verification, or the IAEA Board of Governors would fulfil this role.

74. The Preparatory Group discussed some of the guiding principles that negotiators should bear in mind when developing compliance and dispute resolution mechanisms for the treaty. The mechanisms should be efficient and effective, subject to clear independent decision-making, and taking into account the inalienable rights of States to the peaceful uses of nuclear energy. They should also be adequately equipped to ensure the confidentiality and non-proliferation of sensitive information. Negotiators should strive to create mechanisms that are flexible and adaptable to maintain relevance over time. Negotiators should also not lose sight that these structures are meant to create an effective treaty that can command universal support. The negotiators will need to consider what constitutes non-compliance and who has the authority to determine that a State party is in non-compliance with its treaty obligations.

75. In establishing a mechanism to address possible cases of non-compliance, negotiators will want to ensure that it is non-discriminatory, transparent, objective, fact-based and is equipped to deter frivolous and/or abusive complaints. Since the Preparatory Group agreed that the compliance mechanism could be escalatory in nature, its recommendations in paragraph 56 are outlined according to phases of a possible non-compliance situation. Ultimately, however, the structure developed for situations of possible non-compliance will depend on the type of institutional structure adopted for the treaty.

76. In raising compliance concerns, experts agreed that the verification body should be neutral and fact-based in its report. In addition, States parties involved in these reports should have a right to reply and to request clarifications regarding the compliance concerns. In determining a non-compliance mechanism, negotiators will have to consider what sources of information may be relevant, how it is evaluated and how it is conveyed or relayed.

77. In assessing cases of non-compliance, experts agreed that States parties, whether through a conference of States parties or an executive council, should play the main role. They may wish to request clarifications, initiate consultations or task the verification body with an investigation among other possible actions. In carrying out an investigation, the verification body could initiate special verification measures (e.g. challenge inspections), some of which may require the approval of the executive council. Negotiators will need to consider what role, if any, national technical means could play.

78. States parties (whether in the executive council or the conference of States parties) should be vested with the authority to make a finding of non-compliance

based on the information received from the verification body, the executive council and/or the conference of States parties.

79. Measures taken to address findings of non-compliance could be escalatory in nature and may depend on whether the involved State party is a permanent member of the Security Council. In the event a treaty's institutional structure involves the IAEA, negotiators will need to consider how to resolve potential conflicts in compliance mechanisms between the two treaty bodies.

80. Negotiators will need to consider implementing a certain threshold for launching amendment procedures and/or for adopting amendments (i.e. by voting [x] # of States parties, qualified voting or by consensus). Other mechanisms may be possible once the institutional structure of the treaty is decided.

81. If negotiators establish a dedicated and expedited process for technical updates, they may wish to consider including a provision for regular review of relevant technological developments. To complement treaty processes for technical updates, the institutional structure might include an expert working group tasked with making recommendations on possible technical updates and submitting them to the relevant decision-making body for approval. Any amendments to the treaty, whatever their character, could be made only in accordance with the procedures established by the treaty.

82. Experts agreed that negotiators would need to consider the range of options between overly restrictive entry into force provisions that could negatively impact its effective implementation and more permissive elements that could undermine treaty credibility. In doing so, experts agreed that negotiators should take into account the principles of non-discrimination and ensuring the undiminished security for all. The entry into force mechanism should also be coherent with the objectives of the treaty. In crafting provisions on entry into force, negotiators should consider their implication for treaty universalisation.

83. In addition, the timing of entry into force was examined by the Preparatory Group. From a practical standpoint, negotiators would need to consider the delays that may be incurred to set up governance bodies and/or the verification regime. One option would be for negotiators to subject any of the options outlined in paragraph 60 to a delay as specified by the treaty. In making that decision, negotiators will need to weigh potential risks, including financial, if the treaty's verification regime is prepared without a treaty being in force.

84. Given the complexities of this issue, alternative approaches were suggested such as a phased approach to entry into force. For instance, conditions associated with entry into force (e.g. application of the verification arrangements) could be carried out according to schedules established in the treaty, or negotiated independently with States. In addition, the structure of the treaty could be established so as to enable the entry into force of an initial framework or umbrella treaty, with two or more protocols to be negotiated subsequently, including according to a specific timeframe. Experts agreed that negotiators will want to consider the implications of withdrawal by a State that is required for entry into force as it could undermine the object and purpose of the treaty.

85. Restrictive withdrawal provisions would be central to the credibility and effectiveness of the treaty and negotiators should weigh options accordingly. Experts noted that the consequences of withdrawal fall along a spectrum and could include triggering a formal dispute resolution mechanism or the treaty's termination. Experts agreed that there is a difference between a Member State that withdraws and maintains all necessary applications, and a Member State that withdraws after having carried out activities that constitute a violation under the treaty. Negotiators will want

to consider whether there should be reporting requirements for a State that is withdrawing and/or whether items transferred and subject to the treaty should be returned if the country withdraws. Negotiators will also need to consider how a State that is withdrawing from a treaty may return and whether that triggers new conditions. The role of governance bodies in all aspects related to withdrawal will have to be specified clearly in the treaty to avoid uncertainty in application.

86. If an element on reservations is included, it should apply universally. It would also need to be credible, which negotiators might achieve by making the element as unambiguous as possible. In particular, negotiators may wish to consider specifically identifying the elements to which reservations are restricted. The treaty may also further specify that any signatory or State party has the option of objecting to a reservation, *inter alia*, if, in its opinion, the reservation is incompatible with the object and purpose of the treaty.

III. Other elements

87. In addition to elements shaping a treaty's definitions, scope, verification and legal and institutional arrangements, the Preparatory Group also explored other treaty elements in the treaty's architecture. Part III contains potential elements relating to the treaty's preamble and possible transparency and confidence-building measures.

A. Preamble

88. A treaty will need a preamble, the content of which will ultimately depend on its objectives. More specifically, given the well-known political obstacles to its negotiation, this treaty's preamble might provide an appropriate space in which to contextualize the debate leading to its negotiation. Options for a treaty's preambular elements may include reference to, *inter alia*, in no particular order:

- the United Nations Charter
- content in document CD/1299 and the mandate contained therein
- the contribution of the treaty to international peace and security by preventing nuclear arms races and constituting an effective multilateral non-proliferation and disarmament measure
- ensuring continued international commitment and high-level attention to making practical progress on achieving a world without nuclear weapons and on non-proliferation in all its aspects
- the importance of ensuring that a treaty should not prohibit the production of fissile material for non-proscribed military purposes or civilian use nor limit peaceful research activities
- the importance of consistency with existing legal obligations and instruments as well as the broader non-proliferation and disarmament framework, notably the Treaty on the Non-Proliferation of Nuclear Weapons, and its review conferences, and the Comprehensive Nuclear-Test- Ban Treaty
- the importance of consistency with existing legal obligations and instruments as well as the broader non-proliferation and disarmament framework without explicit reference to other treaties and instruments, including the Treaty on the Non-Proliferation of Nuclear Weapons, and its review conferences, and the Comprehensive Nuclear-Test- Ban Treaty as an FMCT would be a standalone treaty

- the final document of the First Special Session of the General Assembly devoted to Disarmament (A/S-10/4)
- the treaty's role and relation to IAEA safeguards
- the inalienable rights of States to the peaceful uses of nuclear energy
- general treaty principles: mainly non-discrimination, irreversibility, internationally and effectively verifiable
- the risks associated with nuclear weapons
- the principle of undiminished security for all
- transparency and confidence building measures
- the treaty being conducive to strategic stability
- the treaty as a means to reduce risks of nuclear terrorism
- the treaty as a contribution to enhanced nuclear security globally
- the treaty's contribution to further reductions of nuclear weapons
- the importance of active and equal participation and leadership of women and their full involvement in the institutions of the treaty and in its efforts to maintain and promote peace and security
- the importance of having all States with enrichment and/or reprocessing capabilities join the treaty.

B. Transparency and confidence-building measures

89. The Preparatory Group discussed the applicability of elements that could be included in the treaty to enhance transparency and build confidence among States parties. Negotiators may or may not choose to include additional voluntary transparency and confidence-building measures in a treaty. If they decide to do so, they will need to clearly distinguish these from any mandatory obligations against which compliance may be assessed.

90. Potential options for voluntary measures could include one or more of the following:

- declare inventories of previously produced fissile material (all or some categories)
- provide information relevant to treaty objectives on previously produced fissile material (all or some categories)
- provide information relevant to treaty objectives on fissile material production facilities previously used to produce fissile material for nuclear weapons or other nuclear explosive devices
- provide periodic reports/declarations on measures States parties have taken nationally, bilaterally and multilaterally to reduce national inventories of fissile materials available for nuclear weapons and other nuclear explosive devices
- declare material excess to nuclear weapons requirements and subjecting it irreversibly to verification
- provide regular updates on treaty implementation
- declare facilities that fall under fissile material production thresholds

- demonstrate actions consistent with the treaty objectives and purpose, including elements of verification, prior to its entry into force
- agree to a mechanism enabling the creation of annexes or protocols as instruments for the inclusion of fissile material released by the results of nuclear disarmament at a later date.

91. More broadly, and even in the case where such elements are not included in the treaty, the Preparatory Group felt that the entry into force of a treaty with extensive membership will in itself help build trust and confidence, including among States with unsafeguarded fissile material production facilities. Technological and other advances made to enhance a treaty's verification toolbox would also promote trust and confidence among States parties and benefit broader nuclear non-proliferation and disarmament efforts.

92. Transparency and confidence-building measures might also play an important role prior to a treaty's entry into force.

IV. Conclusion and recommendations

93. The work of this Preparatory Group was not intended to duplicate that carried out by the 2014–15 Group of Governmental Experts, but rather to build on its findings by recommending substantial elements of a future treaty. In an effort to help expedite eventual negotiations, experts enumerated options for how potential treaty elements could be captured in a treaty and considerations that will need to be brought to bear by negotiators. Accordingly, the members of the Preparatory Group are confident that the content of this report will supplement document A/70/81 and be a useful resource for negotiators of a future treaty.

94. Experts made substantive headway, notably with regard to the significant analysis of possibilities for the treaty's legal and institutional arrangements. However, it was also clear from the Preparatory Group's deliberations that further work is needed to elaborate the various verification regime models to determine how they might work in practice. Similarly, additional work could usefully be done to assess the resource implications of the possible verification and institutional models. Such work would need to be informed by political considerations and would itself benefit from input from those technical bodies already dealing with related issues. While such work was deemed by experts as worthwhile, they also considered that it should not be regarded as a prerequisite to the immediate commencement of treaty negotiations.

95. In addition, from the outset it was agreed by experts that the Preparatory Group's report would reflect proposed options for treaty elements, rather than attempt to narrow the range of options. Not only did this approach honour the Preparatory Group's mandate, experts agreed it also provided space for constructive deliberations about the implications of all element options, without prejudice to national positions. In this context, experts are confident that the work of the Preparatory Group served to further the understanding of the strategic issues relevant to an FMCT that go to the heart of national security concerns of States. The Preparatory Group displayed a commitment to genuine dialogue among its unique membership, and the inclusivity of this process is a model for other multilateral nuclear non-proliferation and disarmament forums.

96. In addition to the specific recommendations on substantial treaty elements contained in Parts II and III of this report, the Preparatory Group agrees, in accordance with General Assembly resolution 71/259, on the following recommendations:

- The negotiation of a treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices begin without delay in the Conference on Disarmament, and on the basis of CD/1299 and the mandate contained therein
- Further consideration to be given to what measures might facilitate the commencement of negotiations and enhance confidence
- Future treaty negotiators take into account the work of the Group of Governmental Experts and the Preparatory Group as appropriate in their deliberations
- Further expert work be carried out, including in the Conference on Disarmament, to (a) elaborate how the various approaches to verification would work in practice and (b) assess the resource implications associated with the use in a treaty of the various potential elements
- In conveying the work of the Preparatory Group to the Conference on Disarmament, the Secretary-General call upon it to consider and fully examine the Preparatory Group's report
- All States give due consideration to the Preparatory Group's report, which should be read in conjunction with document A/70/81
- The report should be made available to the wider international community including civil society, for example on the websites of the United Nations and the Conference on Disarmament
- Future negotiators should consider gender perspectives/balance, encouraging the participation of women from the technical, scientific and political fields, to ensure their equal contribution to peace and security.

97. Finally, the Preparatory Group agreed that this report represents a significant step forward. Although a diversity of views exist on the content of a future treaty and the options contained in this report, this diversity could be resolved during the process of negotiations. Taken together with the report of the GGE, this report is a contribution to the commencement of negotiations.